AMENDMENTS TO THE CLAIMS

Before claim 1, change ~~Patent Claims~~ to I CLAIM:

Cancel claims 1-27 without prejudice or disclaimer of the subject matter therein and substitute new claims 28-54 therefor:

Claims 1-27 (cancelled)

28. (new) A circuit for rectifying the output voltage of a sensor, supplied with an AC signal from an oscillator for sensing a non-electrical variable, wherein the amplitude and phase angle of the output voltage is a measure of the non-electrical variable, the rectifying circuit including a ramp-generating circuit; and wherein:

- the output voltage (u_1) of the sensor (11) is supplied to the ramp-generating circuit (10; 45; 48),
- the mathematical sign of the transmission behavior of the ramp-generating circuit (10; 45; 48) can be controlled, and
- the mathematical sign of the transmission behavior of the ramp-generating circuit (10; 45; 48) is controlled by a switching signal (u_0*), whose flanks correspond to zero crossings of the output voltage (u_1) of the sensor (11).

29. (new) The rectifying circuit as claimed in claim 28, further comprising a signal conditioner (18) that uses a comparator function and a dead time to convert the output voltage (u_0) of the oscillator (17) to the switching signal (u_0*).

30. (new) The reflecting circuit as claimed in claim 29, wherein the dead time of the signal conditioner (18) shifts the phase angle of the switching signal (u_0*) with respect to an output voltage (u_0) of the oscillator (17) signal through an angle such that the flanks of the switching signal (u_0*) correspond to the zero crossings of the output voltage (u_1) of the sensor (11).

31. (new) The rectifying circuit as claimed in claim 29, further comprising an amplifier circuit, wherein

- the output voltage (u_1) of the sensor (11) is supplied to an amplifier circuit (20) having a gain with a controllable mathematical sign,
- the mathematical sign for the gain of the amplifier circuit (20) is controlled as a function of the switching signal (u_0*), and
- a ramp generator (21; 38) is connected downstream of the amplifier circuit (20), no mathematical sign - inversion being carried out in the ramp generator (21; 38).

32. (new) The rectifying circuit as claimed in claim 31, wherein:

- the output voltage (u_1) of the sensor (11) is supplied to the inverting input of a first operational amplifier (23) via a first resistor (24),
- the output voltage (u_2) of the first operational amplifier (23) is supplied to its inverting input via a second resistor (25),
- the output voltage (u_1) of the sensor (11) is supplied to the non-inverting input of the first operational amplifier (23) via a third resistor (26), and
- the non-inverting input of the first operational amplifier (23) is connected to the reference potential via a switch (27) which is controlled by a switching signal (u_0*).

33. (new) The rectifying circuit as claimed in claim 32, wherein the first (24) resistor and the second (25) resistor have the same resistance value.

34. (new) The rectifying circuit as claimed in claim 31, wherein the ramp generator (21) has an inverting transmission behavior.

35. (new) The rectifying circuit as claimed in claim 34, wherein:

- the ramp generator (21) has a second (30) and a third (31) operational amplifier,
- the non-inverting input of the second operational amplifier (30) is supplied with the output voltage (u_2) of the amplifier circuit (20) via a fourth resistor (32) and the output voltage (u_4) of the third operational amplifier (31) via a fifth resistor (33),
- the inverting input of the second operational amplifier (30) is connected to the reference potential,
- the inverting input of the third operational amplifier (31) is supplied its output voltage (u_4) via a capacitor (35) and the output voltage (u_3) of the second operational amplifier (30) via a sixth resistor (34), and
- the non-inverting input of the third operational amplifier (31) is connected to the reference potential.

36. (new) The rectifying circuit as claimed in claim 35, wherein the fourth (32) and the fifth (33) resistor have the same resistance value.

37. (new) The rectifying circuit as claimed in claim 31, wherein the ramp generator (38) has a non-inverting transmission behavior.

38. (new) The rectifying circuit arrangement as claimed in claim 37, wherein:

- the ramp generator (38) has a second (30) and a third (31) operational amplifier,
- the inverting input of the second operational amplifier (30) is supplied the output voltage (u_2) of the amplifier circuit (20),
- the non-inverting input of the second operational amplifier (30) is supplied with the output voltage (u_6) of the ramp generator (38),
- the inverting input of the third operational amplifier (31) is supplied with its output voltage (u_6) via a capacitor (35) and the output voltage (u_5) of the second operational amplifier (30) via a sixth resistor (34), and
- the non-inverting input of the third operational amplifier (31) is connected to a reference potential.

39. (new) The rectifying circuit arrangement as claimed in claim 37, wherein:
- the output voltage (u_2) of the amplifier circuit (20) is supplied to the inverting input of the second operational amplifier (30) via a seventh resistor (41),
- the output voltage (u_2) of the amplifier circuit (20) is supplied to the non-inverting input of the second operational amplifier (30) via an eighth resistor (42),
- a ninth resistor (43) is arranged between the output of the third operational amplifier (31) and the non-inverting input of the second operational amplifier (30),
- the inverting input of the third operational amplifier (31) is supplied its output voltage (u_6) via a capacitor (35) and the

output voltage (u_5) of the second operational amplifier (30) via a sixth resistor (34), and

- the non-inverting input of the third operational amplifier (31) is connected to the reference potential.

40. (new) The rectifying circuit as claimed in claim 39, wherein the eighth (42) and the ninth (43) resistor have the same resistance value.

41. (new) The rectifying circuit as claimed in claim 28, wherein

- the output voltage (u_1) of the sensor (11) is supplied to a controlled ramp generator (45; 48), which can be changed over between inverting and non-inverting transmission behavior, and
- the mathematical sign of the transmission behavior is controlled as a function of the switching signal (u_0*).

42. (new) The rectifying circuit as claimed in claim 41, wherein:

- the controlled ramp generator (45) has a second (30) and a third (31) operational amplifier,
- the output voltage (u_1) of the sensor (11) is supplied to the inverting input of the second operational amplifier (30) via a seventh resistor (41),
- a switch (46), which is controlled by the switching signal (u_0*), is arranged between the inverting input of the second

operational amplifier (30) and the reference potential,

- the output voltage (u_1) of the sensor (11) is supplied to the non-inverting input of the second operational amplifier (30) via an eighth resistor (42),

- the output voltage (u_8) of the controlled ramp generator (45) is supplied to the non-inverting input of the second operational amplifier (30) via a ninth resistor (43),

- the inverting input of the third operational amplifier (31) is supplied its output voltage (u_8) via a capacitor (35) and the output voltage (u_7) of the second operational amplifier (30) via a sixth resistor (34), and

- the non-inverting input of the third operational amplifier (31) is connected to the reference potential.

43. (new) The rectifying circuit as claimed in claim 42, wherein the eighth (42) and the ninth (43) resistors have the same resistance value.

44. (new) The rectifying circuit as claimed in claim 42, wherein:

- a tenth resistor (51) is arranged between the output of the second operational amplifier (30) and the sixth resistor (34),

- a connecting point (52) between the tenth resistor (51) and the sixth resistor (34) is connected, via a first diode (54), to a negative auxiliary voltage ($-U_H$) and, via a second diode (55), to a positive auxiliary voltage ($+U_H$) having the same value, and

- the value for each of the auxiliary voltages ($-U_H$, $+U_H$) is

smaller than the value for the output voltage (u_7) of the second operational amplifier (30) when the second operational amplifier is overloaded.

45. (new) The rectifying circuit as claimed in claim 44, wherein a second capacitor (58) is arranged in parallel with a series circuit comprising the sixth (34) and the tenth (51) resistor.

46. (new) The rectifying circuit as claimed in claim 28, wherein the ramp steepness of the ramp generator (21; 38; 45; 48) is greater than the maximum steepness of the useful signal of the output voltage (u_1) of the sensor (11; 11'; 78).

47. (new) The rectifying circuit as claimed in claim 28, wherein at least one linear filter (50) is connected downstream of the ramp-generating circuit (10; 45; 48).

48. (new) The rectifying circuit as claimed in claim 47, wherein the linear filter (50) is an active, second-order bandpass filter having single positive feedback.

49. (new) The rectifying circuit as claimed in claim 47, wherein the linear filter (50) is in the form of a Bessel filter.

50. (new) The rectifying circuit as claimed in claim 28, wherein a matching circuit (68) is arranged between the sensor (11'; 78) and the ramp-generating circuit (10), and amplifies the amplitude of the output voltage (u_{13} - u_{14}; u_{85} - u_{82}) of the sensor (11'; 78).

51. (new) The rectifying circuit as claimed in claim 50, wherein the matching circuit (68) isolates reference potentials ($M_{11'}$ and M_{10}, respectively) of the sensor (11') and the ramp-generating circuit (10).

52. (new) The rectifying circuit as claimed in claim 50, wherein:

- a first output voltage (u_{13}) of the sensor (11') is supplied to the inverting input of a fourth operational amplifier (69) via an eleventh resistor (71),
- a second output voltage (u_{14}) of the sensor (11') is supplied to the non-inverting input of the fourth operational amplifier (69) via a twelfth resistor (72),
- the output of the fourth operational amplifier (69) is connected to the inverting input of the fourth operational amplifier (69) via a thirteenth resistor (73), and

- the non-inverting input of the fourth operational amplifier (69) is connected to a reference potential (M_{10}) via a fourteenth resistor (74).

53. (new) The rectifying circuit as claimed in claim 28, wherein the sensor is an inductive movement sensor (11; 11'), and the amplitude and the phase angle of the output voltage (u_1; $u_{13} - u_{14}$) of the movement sensor (11, 11') is a measure of the deflection (s) of a ferromagnetic core (15).

54. (new) The rectifying circuit as claimed in claim 28, wherein the sensor is a capacitive movement sensor (78), and the non-electrical variable (s) alters a capacitance (C_1, C_2) of the movement sensor (78) such that the amplitude and the phase angle of the output voltage ($u_{85} - u_{82}$) of the movement sensor (78) is a measure of the non-electrical variable (s).